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ABSTRACT

This report examines a 30-year history of educational change to identify differing perspectives, strategies, and useful principles. The three most influential perspectives in educational change are the rational-scientific perspective, which proposes that change is created through the dissemination of innovative techniques; the political perspective, which generates change through legislation and other directives outside the school district; and the cultural perspective which seeks improvement through value changes in organizations. There are four strategies for implementing change: fix the parts, fix the people, fix the schools, and fix the system. Systemic education reform offers new hope because it brings together the technical knowledge needed for improvement with a locally sensitive education strategy. Through the Goals 2000 Initiative, the U.S. Department of Education supports reform efforts within the framework of the six National Education Goals. The Department and the Office of Educational Research and Improvement support standards-based assessment techniques. They also assist states in developing curriculum frameworks and help disseminate sound research and practice-based knowledge. A reference bibliography, illustrative programs, and additional sources are included. (JPT)

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SCHOOL CHANGE MODELS AND PROCESSES

A REVIEW AND SYNTHESIS OF RESEARCH AND PRACTICE

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Note to Reader

Intended to promote the exchange of ideas among researchers and policymakers, this report extends a presentation by the authors in a refereed symposium, "School Change, Research and Experience: What Have We Learned?" at the annual meeting of the American Educational Research Association (Division A), April 22, 1992, San Francisco.

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Executive Summary

How does educational reform—the improvement of schools—actually happen? What do we know that might be used to make it happen more effectively? This synthesis report examines the 30–year history of educational change in order to identify differing perspectives, strategies, and ultimately, useful principles.

Three perspectives that have been most influential in educational change are: 1) the rational-scientific perspective which posits that change is created by the dissemination of innovative techniques, 2) the political perspective (the top-down approach) which brings about change through legislation and other directives imposed by parties outside the school or district, and 3) the cultural perspective (the bottom-up approach) which seeks to influence change by encouraging value changes within organizations.

The strategies used for change in schools are even more varied than the perspectives that propel them. We define and discuss four such strategies, each with a specific focus and purpose. These are: 1) fix the parts (curricula, teaching methods), 2) fix the people, 3) fix the schools, and 4) fix the system. In this report we review efforts at school reform and improvement through each of these strategies.

Fix the parts. This strategy aims to improve schools by gaining adoption of proven innovations in educational practice. The assumption is that through widespread dissemination of such practices it is possible to improve all schools. After many years of experiment we now know that this is, at best, a partial solution. The more that dissemination consists of stand-alone information the less likely it is that potential users will actually adopt innovations. In contrast, the more that any dissemination effort involves personal assistance and continuing support from skilled, knowledgeable, and well-regarded others, the more likely the innovation will be used (in some form) and that the use will last. Educational reform involves much more than just "getting the word out" about new and better practices.

Fix the people. This is the training and development approach. What we know today is that most staff development activities have very little impact, regardless of how well designed or effectively delivered they are. The reason is simply that people are far more likely to bow to the strong expectations of their organizations—their schools—than to persist in trying new and different ways of professional action. Only when staff development is part of an overall strategy for professional and institutional reform can this strategy succeed.

Fix the school. Various school improvement approaches have been developed, aimed at creating change (for the better) by dealing with the entire school as a system. The aim is to develop organizational capability for solving problems and making improvements. The problem with this approach is not that it does not work but that to make it work usually calls for a level of effort and outside resources that most schools cannot afford. For this reason various, relatively low-cost adaptations of the organizational development approach have been developed and applied, with relatively good results. However, with well over 100,000 public schools to change, even these less costly adaptations are slow to have any large-scale impact.

This is especially true due to the strong influence that district and state education agencies often have over the individual school. A more effective strategy must incorporate a focus broader than the school building.

Fix the system. This fourth approach, systemic reform, is the most recently developed. Systemic reform involves reforming and restructuring the entire enterprise of education, from the level of national goals to state curriculum frameworks, on to the district, the building, the classroom and the teacher. We believe that this is the strategy most likely to succeed, though the results are far from clear. The success of systemic reform is due in part to the incorporation of all three of the perspectives defined above, with an emphasis on the cultural perspective. This means that systemic reform is based ultimately on the development of a strong and common purpose shared by those at the national, state, district, and school levels, both education professionals and everyone else concerned with education in America.

Long-term success has not been achieved by any of the three common strategies defined above and discussed in depth and detail in this report. However, by examining the successes and the failures of these strategies, we can better understand how to undertake effective educational change through the fourth, most recent strategy, systemic reform. We believe that systemic reform holds the most promise for success in changing and improving education and educational outcomes for all children.

A Systemic Strategy to Support Comprehensive Reform

The new wave of education reform is promising because for the first time it brings together the technical knowledge needed for improvement with a locally sensitive yet systemic education strategy. At the national level the U.S. Department of Education has a number of important roles. First, through the GOALS 2000 initiative, the Department supports the efforts of states, districts, schools, and communities to develop capacity to undertake and sustain reform themselves, all within the framework of the six National Education Goals. Next, the Department and the Office of Educational Research and Improvement support standards-based reform, by facilitating the development of both national standards and new and more effective approaches to assess the extent to which standards are met in core curriculum areas. The Department and OERI also assist states in developing new state curriculum frameworks by which the national standards can be attained. Finally, OERI is committed to the dissemination of sound research and practice-based knowledge with respect to innovations and reforms in curriculum and instruction, the improvement of the professional preparation and development of teachers, the improvement of the quality of schools as organizations, and ways of bringing together these factors to achieve and sustain high performance.

This reform strategy will not prove quick or easy. However, this strategy, based as it is on the integrated approach we have called systemic reform, draws strength from being grounded in a set of consensual National Education Goals. Most important, it is driven by the determination of those at the national, state, and local levels to make it happen.

School Change Models and Processes
A Review and Synthesis of Research and Practice

This report synthesizes the 30–year history of educational change in order to identify differing perspectives, strategies, and ultimately, useful principles. Three perspectives that have been most influential in educational change are: 1) the rational-scientific perspective which posits that change is created by the dissemination of innovative techniques, 2) the political perspective (the top-down approach) which brings about change through legislation and other directives imposed by parties outside the school or district, and 3) the cultural perspective (the bottom-up approach) which seeks to influence change by encouraging value changes within organizations. The strategies used for change in schools are even more varied than the perspectives that propel them. We define and discuss four such strategies, each with a specific focus and purpose. These are: 1) fix the parts (curricula, teaching methods), 2) fix the people, 3) fix the schools, and 4) fix the system.

On the whole, long-term success has not yet been achieved by any of the first three strategies. However, by examining these approaches and their effects, we can better understand how to undertake effective educational change through a fourth, more recent approach, called systemic reform. This cultural change-based approach incorporates elements of both political action and scientific-technical innovation, drawing in aspects of all three perspectives. It also incorporates elements of the other three strategies. Systemic reform holds the most promise for successful change by means of a new wave of educational reform.

Our purpose in this analysis and synthesis is to trace broad patterns in 30 years of research on changing schools. One goal is to tease out some guiding principles to help those who are now embarked on a new wave of educational reform based on an approach called systemic reform. Another is to identify some lessons from research that can be applied to make school improvement efforts more successful.

We first define three fundamental perspectives on how and why schools change. Each perspective makes certain assumptions about why people change and what drives change. Next we examine four broad strategies for bringing about change in schools. The strategies are grounded in one or, in some cases, a combination of the three perspectives on change that we defined first. Each of the four strategies includes a variety of tactical approaches, and we review research that tells us whether and how well certain tactics and strategies work. Finally, we try to show how three of these strategies, representing the conventional modes of improving schools, are or can be incorporated within the fourth, providing a strong foundation

for change by integrating the three perspectives on change, allowing them to reinforce one another.

We must warn readers that our review is selective. It represents how *we* think of the history of educational change over the past 30 years and how *we* see major trends of reform. We have tried throughout to observe Einstein's dictum: "Everything should be made as simple as possible, but not simpler." Our aim, however, is to explore forests rather than classify trees. We trust that readers will consult sources in the reference bibliography at the end of this book to fill the gaps in this brief survey.

Three Perspectives on School Change

There are many approaches to the study and practice of change and improvement in schools. These varied models often have different underlying assumptions and values about change. But, despite these differences, all approaches reflect one (or more) of three broad perspectives on the change process. These perspectives derive from classic research on change (Chin and Benne 1969) but have been modified by House (1981) to fit education systems better. They are: (a) the *rational-scientific* or *R&D* perspective, (b) the *political* perspective, and (c) the *cultural* perspective.

From the late 1950s to the 1970s the rational-scientific perspective was dominant, especially for those involved in federally sponsored research and improvement programs. This perspective on the change process is straightforward, if simplistic. It assumes that people accept and use information that has been scientifically shown to result in educational improvement. One example is the set of curriculum development and diffusion programs sponsored by the National Science Foundation. These new curricula were developed by experts, tested, validated, and then disseminated to potential users who, it was assumed, would adopt and use them as designed.

The political perspective was especially prominent in major top-down, state-level reforms that followed the shift in initiative from federal to state levels in the early 1980s. This perspective was demonstrated, for example, by strong external policy controls derived through processes of bargaining and political compromise among power groups. The most simplistic version of this perspective was to mandate certain changes and outcomes, often by law. It was then assumed that the changes would be made. A more sophisticated version of the same political perspective involves those in top-level power positions formally waiving various controls and requirements if lower-level agents (schools or districts) can demonstrate that they are achieving certain desired conditions or outcomes. In their extensive analysis of the use of policy for school change and improvement McDonnell and Elmore (1987) describe four policy instruments used by states: mandates, inducements, capacity building, and system changing.

The cultural perspective emphasizes changes in meanings and values within the organization undergoing change. Cultures change as a consequence of the actions of leaders who transform

their organizations. This has become a dominant perspective or metaphor of major school redesign and restructuring efforts in the 1990s, reflecting current approaches in the business sector (Moorman and Egermeier 1992).

Four Operational Strategies for Improving School Performance

The three broad perspectives on change in schools form a backdrop for understanding the nature and use of certain operational approaches or strategies for change. We will review four such strategies. Each represents an attempt to invoke one or more of the three perspectives. That is, a particular strategy may focus on one of the three perspectives, drawing on it as a primary force for change, while making use of one (or both) of the other perspectives to provide added strength.

The four operational strategies for change are

(1) ***Fix the parts,*** which involves improvement by adopting proven innovations of various types;

(2) ***Fix the people,*** through training and development;

(3) ***Fix the school,*** by developing school organizations' capacities to solve their own problems; and

(4) ***Fix the system,*** by reforming and restructuring the entire enterprise of education, from the state department of education to the district and the school building.

We will review each of the four strategies, focusing on strengths and weaknesses. To keep this review within practical limits, we will cite only a few key research studies dealing with each strategy. In concluding we will show how the first three strategies come together, in the form of the fourth strategy, in a way that builds on the strengths of each by drawing on all three of the perspectives on change defined above.

Strategy 1—Fix the Parts: Transferring Innovations

The focus of this first strategy is on the transfer and implementation of specific educational innovations. These programs may involve specific curricular content such as new materials for teaching English or mathematics. Or, the focus might be on practices, for example, the way teachers present materials to students or the way school principals act to become instructional leaders. Thus, the idea is to fix the ineffective or inadequately performing parts of schooling by implementing one or another new idea that, if used properly, will produce better results for students. This strategy is based mostly on the rational-scientific/R&D perspective.

For at least a third of a century there have been concerted efforts to study and perfect the processes by which teachers and administrators learn of and adopt new programs and practices that lead to educational improvements. Most large-scale studies on how to get educators to adopt specific innovations were conducted in the 1970s, using federal funds.

The Pilot State Dissemination Project (PSDP) (Sieber et. al. 1972) was one such study. It set up dissemination agents in three states. Their roles were modeled on two concepts. The first is that of the Agricultural Extension Service county agent, who serves as a personal communication link between researchers and their innovations (such as hybrid corn) and farmers. The second conceptual basis was the general model of social linkage for dissemination of innovations developed by Havelock (1969). That work provided a detailed and research-based conceptualization of the role of the linker, the county agent. PSDP agents served not the entire state but a county or a school district. The project was successful. There was much more effective dissemination of information in the targeted counties and districts. Effective adoptions were quite clearly related to the level of interpersonal contact between the agent and the users. In fact, the dissemination agents often acted to provide not just needed information but extensive technical assistance, helping teachers and administrators to deal with and solve specific problems. But, given the labor intensive nature of PSDP, the costs were so great as to make this effective approach untenable as a national strategy. A rough estimate of the cost of maintaining an agent in each of 14,000 school districts today would be about $1 billion per year.

On the heels of PSDP, from 1973 to 1978, the Rand Corporation conducted a national study of four federally funded programs centered on innovative practices. One gave general support for local innovative projects. A second supported district bilingual education. The third centered on new approaches to career education. The fourth and final program funded local efforts to eliminate illiteracy. The study examined a total of 293 specific projects. The findings were disappointing. The amount of money and effort invested in a project made little difference. Neither did the specific project content, because, for the most part, the specific innovations were adapted and changed, not simply adopted, by users. Outside consultants and one-shot, packaged training approaches tended to fail miserably. Even when there were some positive effects, they tended to dissipate over time and when federal funds ended.

What worked? Broad scope and ambitious aims seemed to help, especially when meshed with strong leadership, high motivation and involvement of teachers, and long-term support. In retrospect, McLaughlin (1989) observes that "it is exceedingly difficult for policy to change practice." She adds, "Implementation dominates outcome," and goes on to assert that what matters cannot be mandated. "What matters most," McLaughlin goes on to say, "are local capacity and will." Finally, McLaughlin notes that "local variability is the rule; uniformity is the exception." Thus, one cannot expect innovations to be adopted, only adapted.

A third study (Horst et al. 1975) examined a very different approach, Project Innovation Packages—complete innovation packages representing approaches to compensatory education in reading and math. Developed locally and proven effective, the packages were designed to

be implemented by teachers with no other information or assistance. The results were generally negative. At best, teachers implemented the packages mechanically and adapted them so much that there appeared to be little difference from prior practice. An evaluation study suggested that the concept of packaged innovations be reconsidered.

In contrast, a number of studies of the dissemination of innovations have come up with favorable (if generally modest) results. This happens most often when information about the innovation is augmented by various forms of additional assistance or support. This is seen in a 1976 study of the U.S. Department of Education's National Diffusion Network (NDN). NDN disseminates (to schools) curricula and programs that were locally developed and have been proven to work. In each state a state facilitator provides some assistance to individual adopters. In other words, NDN is a highly specialized version of the Pilot State Dissemination Project, focused on connecting users with one specific set of innovations—programs that have been validated through a formal review process. Like PSDP, NDN has proven to work rather well in getting information to users. NDN also has a strong track record in producing specific changes in school practice at a moderate cost. Emrick and Peterson (1978) observed, "the evaluation study concluded that the NDN represents one of the few highly successful federal efforts to make wide-scale use of important developmental improvements in educational state-of-the-art."

The PSDP and NDN findings are consistent with those obtained by Louis, Rosenblum, and Molitor (1981) in the NIE sponsored Research and Development Utilization (RDU) program. The RDU program, operating from 1976 to 1979, attempted to link educational R&D results to local school improvement efforts in over 300 schools in 20 States. The program went well beyond the NDN and PSDP efforts in that extensive technical assistance was planned and provided at every step so that the dissemination and adoption process became more of a true problem-solving process than a simple adoption of innovation. Evaluating the outcomes, Louis and Rosenblum (1981) concluded that "a well-designed dissemination strategy which emphasizes the provision of high quality information, technical assistance, and small amounts of funds to local schools can be effective in promoting improvements in schools, in educational practice, and in benefits to students."

The final dissemination of innovation study we will mention began while the RDU program was winding down. The results of this "Dissemination Efforts Supporting School Improvement" or DESSI study were summarized by Crandall and Loucks (1983). The DESSI study examined a variety of federally supported approaches for increasing adoption and use of innovations. The study involved "nearly 150 schools [in] attempts to improve education by introducing and implementing innovations." Overall the outcomes were weak, consistent with those of the Rand study, which examined projects where federal funding of local innovation was the external stimulus or agent of change (McLaughlin 1989). However, Crandall and Loucks found more positive results when there was high local involvement *and* extensive contact and assistance from personal change agents, including support materials. In a retrospective analysis Crandall (1989) emphasized the positive outcomes and the practical feasibility of the dissemination strategy. Nonetheless, he also observed that transforming complex social systems involves "a mix of persistence, passion, politics, people, and

knowledge." He went on to conclude that "knowledge is a weak lever in this process . . . Nonetheless, it is the one around which we all ply our trade."

While Crandall comes to a mildly optimistic conclusion, a less positive viewpoint was presented 15 years earlier by House (1974). Reviewing several technical innovation attempts, House produced a scathing denunciation of the dissemination of innovation approach showing how the internal politics of school systems resist and defeat any external political, top-down force for innovation. Despite this, House correctly predicted the federal government's continued efforts to support this approach to improving schools, an approach that could not, in his view, succeed.

There have been several attempts to use a dissemination of innovations approach to effect comprehensive school-level change. Most often the approach is to gain acceptance and adoption of multiple school innovations, all at the same time, with the idea that this will lead to change in the school as an entity. We will review four such approaches: Ford Foundation's Comprehensive School Improvement Program (CSIP) (Ford Foundation 1972); the Experimental School Program (ESP) (Doyle 1978); the Individually Guided Education (IGE) program developed at the University of Wisconsin's Center for Education Research (Klausmeier 1990); and, what has come to be known as the "effective schools approach" (Bossert 1985; Corcoran 1985; Edmonds 1979).

The Ford Foundation's Comprehensive School Improvement Program (CSIP). This 1960s program emphasized staff development strategies to change educational structures and introduce "a sufficient number of . . . new practices to create a critical mass—a chain reaction of change that would overcome the inertia of school systems and produce significantly different educational institutions." (Ford Foundation 1972) Thus, not only would an entire school undergo change, it would act as a spark to ignite change efforts throughout a school district, even a state, and, ultimately, the effects would be felt throughout the nation. The foundation sponsors and staff, however, underestimated the complexity and cost of supporting such a program. Changes were much more likely to be sustained if the school was small and had a relatively simple organizational structure. Moreover, they conclude, ". . . changes in practice were effective only within the existing classroom-oriented parameters of project schools. The limited outcomes of CSIP strongly suggest that a program aspiring to be 'comprehensive' must look beyond the manipulation of variables within the school and deal more directly with outside factors such as financing, parent expectations, and local social and political pressures. The more fundamental the changes . . . , the more central such issues become."

The Experimental Schools Program (ESP). This federally supported program, initiated in the early 1970s, was an "attempt to introduce broad, effective, and lasting change" in schools to test the viability of a comprehensive approach to change (Doyle 1978). Program designers, however, vastly underestimated the complexity of the task, while overestimating the capability and appropriateness of direct federal staff involvement in shaping local change efforts. Doyle concludes, "Many of the problems . . . could have been predicted . . . But the knowledge educators have about barriers to change and about facilitators of change is usually ignored by

both local and federal actors. Change cannot be launched successfully at the same time it is being planned."

Individually Guided Education (IGE). Our third illustration of an attempt to disseminate a school improvement model and process extended over a period of 15 years, beginning in 1964. The IGE program (Klausmeier 1990) was built up of carefully researched and tested components, including a tested dissemination strategy that led to state-wide adoptions and implementation in many states by the late 1970s. The program was widely acclaimed and used until federal support for professional development and technical support activities was withdrawn. The cost of sustaining the IGE program in state and local contexts (which remained fundamentally unchanged) was simply too great to be borne locally or by states without continuing federal support. Even so, there still exists a small voluntary network of IGE schools that provides training for school staff.

Effective Schools. The fourth illustration represents a special type of innovation. The effective schools approach is aimed at creating social-organizational change, not just a set of technical changes (such as a new curriculum, new equipment, or new teaching techniques). In the 1970s a body of research and practice knowledge began to form, commonly called the "effective schools" literature. Developed originally out of the groundbreaking work of scholar/practitioner Ron Edmonds (1979), this literature identifies a set of characteristics of exceptionally effective schools, such as strong leadership, clear school-wide goals, and a safe and calm physical environment that facilitates learning. Later studies added to and focused this set of characteristics (e.g., see Bossert 1985; Corcoran 1985). There is little doubt today, as Bossert observes, that exceptionally effective schools have

- A safe, secure climate conducive to learning;
- Expectations among teachers that all students can succeed;
- An emphasis on basic skills and on time spent in learning activities;
- Clear instructional objectives and measures; and
- Strong leadership on the part of the principal.

As has been the case for other, more narrowly defined technical innovations, we find that simple adoption of school improvement models is, first, not easy and, second, not likely to result in dramatic improvements in student outcomes. There has been considerable effort by those who would change and improve schools toward inculcating some or all of these (and/or other, similar characteristics) in schools that are not especially effective. The hope has been that by instilling these characteristics a school's effectiveness will increase. But after reviewing results of a variety of studies, Bossert (1985) concluded that "there is no single formula for combining these ingredients [the characteristics] into a successful school program . . ."

Looking at the same research, Corcoran (1985) came to a similar but more sophisticated conclusion. He observed, "It is not simply the presence or absence of these characteristics that accounts for the effectiveness of a school. The norms, rules, rituals, values, technology, and curriculum combine to create a culture of achievement, a press for excellence. This is the 'ethos' . . . or climate mentioned in other effective schools studies as a critical factor in their success."

It seems that what must change is not just a practice (a new pedagogical style), a curriculum element (a new approach to teaching science), or an organizational characteristic (such as a safe climate). What must change is more difficult to get hold of: the ethos or culture of the school. We will return to this issue repeatedly in discussing the next three strategies. Meanwhile, a recent General Accounting Office (GAO) study found that effective schools concepts have, in some form and to some extent, been adopted more or less systematically in over one half of all school districts in the United States (U.S. General Accounting Office 1989). This is not the result of any directed dissemination of a carefully prepared program but the outcome of the sort of complex processes we will discuss in terms of our fourth strategy. The GAO study concluded that the rapid spread and use of the effective schools research concepts is being achieved through a largely uncoordinated array of supports, including Chapter 1 and Chapter 2 funding and technical assistance at the local level from state education agencies, the regional educational laboratories, higher education institutions, and others. The impact of these effective schools programs on school and student performance is now being studied in a U.S. Department of Education project.

To a degree, the problem of disseminating the effective schools approach exists because, as Miles (1992) asserts, the effective schools approach is not simply an innovative program. In his terminology it represents what Miles calls a "grounded vision" that must be adapted before being adopted. This leads to many different versions of effective schools. All share most of the same basic culture and characteristics, but all also differ in ways usually minor but occasionally substantial. Although the effective schools approach has not been a panacea, it has enlightened those who would change schools for the better by highlighting both the issues and the pitfalls in trying to change the cultures of schools, that is, the set of shared values and beliefs held by teachers, students, administrators, parents, and others who are deeply and daily involved in schooling. We shall see these problems played out more fully and, in some cases, to greater positive effect when we turn to other of the four strategies to be reviewed.

> ***Summary: Dissemination and Use of Innovations in Education.*** We have reviewed some important studies of this essentially rational approach to getting new knowledge into practice. What they say is that the more that dissemination consists of stand-alone information, the less likely it is that potential users will actually adopt innovations. In contrast, the more that any dissemination effort is based on a variant of the Agricultural Extension Service model, with personal assistance and continuing support from a skilled and knowledgeable local agent, the more likely it is that the innovation will be used in some form and that the use will be of long duration.

These and other studies tell us that a *purely* rational-scientific approach does not work well. Adding some political (policy) force can, as McLaughlin observes, increase the chances for success, but the costs of doing so appear to be very great, the short-run benefits minimal, and the long-term outcomes arguable. However, adding elements from the cultural perspective—personal support and expert assistance from a friendly outsider who can be counted on to be there over the long run—increases the effectiveness of this knowledge dissemination strategy. Even a relatively low-cost investment in this regard seems to pay off handsomely.

The focus on how to link new knowledge to schools has shown that this aim is attainable, has demonstrated various effective ways to do that, and has proven that there are some real if limited benefits. A broader issue is whether this strategy actually leads to sustained school improvement that results in improved student achievement. Studies examining this issue are still in process, but the best evidence is that even when transferring innovations works it does not seem useful as a lever for dramatic, sustainable, school-wide improvement.

Research results on the school-level improvement approaches we have described, approaches that were undertaken as dissemination projects, seem to us consistent with research on the "fix the parts" dissemination approach. Successful adoption of innovations is far more complex and costly a process than had been imagined. When coupled with the great complexity of whole-school change, such efforts falter. And, when true costs are figured in, the relative advantage of these school improvement approaches over the status quo becomes less impressive.

Strategy 2—Fix the People: Training and Developing Professionals

The idea here is that improved educational outcomes are best achieved by first improving the knowledge and skills of teachers and administrators, making them better able to perform their assigned roles. This professional development strategy typically reflects the rational-scientific perspective, but it may also incorporate a cultural perspective. Two basic sub-strategies are teacher and administrator pre-service (college level) training and teacher/administrator in-service training. Special provisions for bridging those two forms have also been developed in the form of collaborative pre-service programs and formalized induction programs.

Most research has focused not on whether developed staff proceed to improve the educational enterprise but on how to develop staff. One exception is the recent work of Fullan (1990), who attempts to link staff development to institutional development, that is, "changes in schools as institutions that increase their capacity and performance for continuous improvements." Fullan identified three approaches to staff development. First, and based in large part on his own early research, staff development can be used to gain adoption of innovations. This is not surprising considering the findings we just reviewed on the most effective ways to dissemination innovations. That is, staff development can be seen as another way to provide intensive personal support to those who could adopt, or are in the process of

implementing, an innovation. Of course, Fullan points out that this works only when the staff development activity is well designed and conducted effectively and teachers are shown how the innovation relates to improved student outcomes. Fullan concludes, "staff development, implementation of innovation, and student outcomes are closely interrelated, but because they require such a sophisticated, persistent effort to coordinate, they are unlikely to succeed in many situations. Any success that does occur is unlikely to be sustained beyond the tenure or energy of the main initiators of the project."

Second, Fullan observes, staff development can be considered an innovation in its own right. As such, when effectively implemented and maintained, it would lead to improved performance on the part of teachers and administrators and subsequent improvements in student outcomes. "New policies and structures that establish new roles, such as mentors, coaches, and the like, are and can be considered as innovations," Fullan points out. He reviews research on mentor programs to show that such staff development activity is more likely to be adopted and effective when considered explicitly as an innovation. Fullan also notes that even current researchers tend to treat mentor-based staff development not as an innovation but as a strategy for introducing other innovations. But whether treated as a strategy or an innovation, the impact of mentoring—like staff development in general—"will be superficial and short-term and will be confined to a few participants."

Staff development, in Fullan's model, links classroom improvement to school improvement. The former is based on improvements in curricular content, instructional strategies, instructional skills, and classroom management. The latter is founded on a culture with four crucial characteristics: collegiality; shared purpose; belief in continuous improvement; and, appropriate structures (roles, policies, and organizational arrangements). The link between the classroom and the school is the "teacher as learner." To Fullan this means that teachers take an enquiring approach, collaborate among themselves and with administrators, constantly refine and develop new technical skills, and engage in self-learning through reflective practice. These four elements of the teacher as learner are, according to Fullan, rarely addressed all together in the same setting.

Fullan concludes his review by arguing that the staff development strategy can succeed only when staff development is seen as "part of an overall strategy for professional and institutional reform." This implies an approach to change that is focused on changing "the culture of the school as a workplace." At this point, we have ceased considering staff development as an improvement strategy and started to view staff development as an integral part of what we will later discuss as systemic reform.

> ***Summary: Professional Development.*** Though Fullan cites some tentative, small-scale, and/or in-process research studies that support his views, his argument is based more on identifying clearly the limits to staff development that can be seen in various applied research studies. Those studies show that staff development can be an effective tool for change, both in terms of change in teaching and improvements in learning. But, as Fullan points out, such effects are not easy to produce, and there is no evidence that even when attained these outcomes lead to overall school improvement.

Fullan argues that staff development must be seen as both part of a broader approach, focused on changing school culture, and as the key link in such an approach between the classroom and the school. Thus, he really rethinks and extends the professional development strategy far beyond its original domain. While Fullan's argument is clear and reasonably convincing, it is not yet backed up by anything resembling concrete data or even cases of success.

Strategy 3—Fix the School: Developing Organizations' Capacities to Solve Their Problems

This third strategy centers on the school as an organization. The approach grew out of a practice field called "organization development" (OD). OD efforts aim to help people in organizations learn to solve their own problems more effectively. The focus is on *organizational* problems rather than problems dealing with just a part of the organization or with certain technical skills of organization members. This strategy draws mostly on the cultural perspective but often involves one or both of the other perspectives. Like dissemination of innovations and staff development, OD is an applied field with a substantial research and practice literature that goes back almost 50 years (Sashkin and Burke 1987). People in organizations work on identifying and solving their own professional/institutional problems and thereby learn to solve problems in general. This means that OD involves the collection of data to identify problems and diagnose their causes as well as to determine whether and how well the actions designed to solve those problems actually work.

OD is based on certain values, including those of a good quality of work life for people and good organizational performance. OD also values the independence of the organization from outside helpers who would do people's thinking for them; this explains the emphasis on organizational learning and internal problem solving. OD promotes the use of valid information and is data based. Thus, OD values open sharing of information as well as the data-gathering process.

OD researchers and practitioners now explicitly state that OD is about changing the organization's culture, that is, the set of shared values and beliefs held to, knowingly or not, by most or all of an organization's members (Schein 1992). But changing culture is a difficult and long-term proposition. It typically involves the use of one or more highly skilled (and expensive) consultants who help the organization learn to identify and begin doing systematically, on their own, what must be done to improve the school. The initial learning process often extends over periods of 2 to 5 years. Even more time is often required for significant benefits to appear in overall school performance and student outcomes. It may be this factor of cost and long-term focus, more than any other, that explains the relative rarity of OD in schools.

In an extensive review of OD in schools, Fullan, Miles, and Taylor (1981) suggest that only when a school or district meets certain readiness criteria should OD be used. (Some of these

criteria are openness of communication, high communication skills, a widespread desire for collaborative work, and agreement about the educational goals of change.) Fullan et al. suggest that for schools that don't meet such readiness criteria, other forms of OD might be developed or other, non-OD strategies for improvement might be used.

In the decade since the Fullan et al. synthesis, OD has not appreciably increased in schools, but a variety of OD-based "school improvement models" have been developed. One of the most widely used is the "Onward to Excellence" (OTE) model developed by the Northwest Regional Educational Laboratory (NWREL). Over a period of 5 years NWREL staff designed, tested, and refined a school improvement approach that creates a faculty-administrator team. This team learns to collect and interpret data and is guided through a step-wise problem-solving process. Teams from many schools are trained at the same time. They receive some (but little) individual assistance and a modest amount of follow-on work.

There are many other school improvement models that share most of the attributes of Onward to Excellence. That is, they create and train teams composed of faculty and administrators. These teams become their own internal OD consultant groups. In a sense, these school improvement models are really innovations that are disseminated through a form of staff development, with considerably more than the usual degree of personal attention from the trainer/change agents. Moreover, the improvement teams not only learn to use a problem-solving model, they learn it in the context of solving real school problems that they have identified and agreed are important. In sum, these various school improvement models represent exactly what Fullan et al. called for more than a decade ago, that is, modifications of the OD approach that could be used in many or most schools.

Research by NWREL (Butler 1989) has shown that OTE teams solve problems and achieve goals. The long term effects of OTE include positive impacts on student outcomes (such as standardized test scores). Similar results are found for other school improvement models. There are, however, at least two important weaknesses of these models. First, these OD-based approaches are not generally available. The number of school teams trained by NWREL over the past 5 years is in the hundreds; the number of schools in the United States is over 100,000. A second related weakness is that these approaches typically target individual schools, not school districts. While there are some efforts now in process to develop analogous approaches to change at the district level, those efforts are in their infancy. The school improvement models that are most widely available, the ones that we seem best able to use, have been validated for individual schools, not districts (although a district-level version of OTE is now being tested). And, there has developed serious concern for improvement at the state level; none of the OD-based school improvement models even addresses this issue.

> ***Summary: OD and School Improvement Models.*** The descriptions provided here of OD and school improvement models are so brief that the reader is best advised to consult some of the references we have cited. Organization development, an approach to changing the culture of an organization so that the organization is better able to adapt and solve problems and also is a better place for people to work in, has been

shown to work in schools. However, it is a costly and long-term approach that never involved more than a tiny proportion of schools. A variety of school improvement models (SIMs) have been developed that share some of the more important characteristics of OD. Typically, teams of faculty members and school administrators are trained to collect data, analyze their own organizational problems, and work together to develop, implement, and evaluate solutions. The chief limitations of SIMs are their limited availability and their focus on just one school at a time, ignoring the district and state level.

Strategy 4—Fix the System: Systemic Reform

Although there have been several notable efforts in the past half century to change the system or to create viable alternative schools, they tend to be isolated and limited in scope, staying power, and ultimate impact in changing systems. Only in the past 5 years has public and professional attention been focused on comprehensive school change or systemic reform. This fourth approach goes beyond new techniques and innovations, better teaching and more effective administration of schools, and more effective problem solving at the school building level. Systemic reform incorporates the other three strategies in a new and broader context that extends to the community, the school district, the state education agency, professional development institutions, and even the national level. And, in doing so, this new systemic redesign strategy incorporates all three of the fundamental perspectives we defined, with a special focus on cultural change.

Systemic reform is based on and incorporates a change approach called "restructuring." The term restructuring seems to have become the watchword of the 1990s. In fact, restructuring is such a popular term that it is in real danger of becoming so widely applied to so many different things as to be meaningless. Nor is there a clear and definitive—or even a vague and tentative—set of research findings to tell us whether (or what about) restructuring works. In a recent RAND Corporation report Lorraine McDonnell (1990) says, "The current state of research knowledge is insufficient to establish a causal link—or even an empirical one in some cases—between [restructuring] and student outcomes."

Yet, after reviewing hers and several other very current reports, we are of the mind that there is an underlying coherence to the concept of restructuring and to the broader and more inclusive notion of systemic reform. We find various researchers and practitioners repeating the same factors as basic elements in defining and describing a systemic approach to school improvement. Even more important, we see in restructuring and systemic reform the application of many hard-learned lessons, coming from the experience of trying to implement one or more of the strategies we have already discussed.

Restructuring is a basic and important part of systemic reform, but can we provide a definition? None fully captures all of the meanings and values associated with restructuring. One simple definition is:

> ***Restructuring involves changes in roles, rules, and relationships between and among students and teachers, teachers and administrators, and administrators at various levels from the school building to the district office to the state level, all with the aim of improving student outcomes.***

What, then, is the nature of these changes? What are the specific and concrete components of restructuring? At least four are referred to consistently in the recent literature. First, and perhaps most important, restructuring means decentralizing authority. That is, devolving authority from the state to the district, from the district to the school building, and from building administrators to teachers—"pushing decision making down to the lowest appropriate level in the system." This is often called site-based management or SBM. SBM means much more than just delegating authority to lower levels of the system. Most of all, it implies the existence of a coherent system. Thus, roles and relationships between the school and the district and the district and the state education agency are not done away with; they are changed in fundamental ways. Two recent research reports on SBM (David 1989; Hill and Bonan 1991) point out that the district plays a crucial role and that district support and leadership is more important to successful change than many of the operational details of SBM in a particular school.

Second, and intertwined with SBM, is a basic change in accountability. SBM does not imply laissez-faire on the part of individual schools. Rather, SBM provides authority consistent with responsibility. It is an important part of the district's and the SEA's role to define at least some of the parameters of school site responsibility. Timar (1989), reviewing three different approaches at the state level, finds the most effective approach involves "changing the way that schools do business. Improving organizational competence . . ." This means "political interaction" by articulating broad state policy goals that can be met by discretionary authority and local flexibility. In this way state policy goals are integrated with local conditions and practices.

Timar (1989) uses the South Carolina approach as his successful example. In this case "the State required schools to provide remedial instruction to students functioning below grade level but left it to the schools to decide how to best organize those programs." A recent report by the Education Commission of the States (ECS)(1991) puts it more generally, noting that state policy should provide for "the development of a shared vision and comprehensive strategic plan." Thus, there is a leadership vision that defines strategic aims while SBM empowers people at the local level to act to address those aims in ways that work. (In contrast to the South Carolina example, Timar details two other examples that he concludes failed, California's permissive decentralized strategy and the Texas policy approach of rational planning and regulation.)

One way to frame this change in accountability is by defining voluntary national standards that are then operationalized by state curriculum frameworks. This provides a common vision and direction while leaving the authority to implement that vision at the state and local levels. And by involving many technically expert stakeholders in the process of defining standards, the likelihood is raised of successfully creating a widespread commitment to the standards.

This is what recently happened with respect to the development of voluntary national standards for mathematics, a process guided by the National Council of Teachers of Mathematics. People with high expertise and a diverse set of professional roles, ranging from teachers to researchers and policymakers, were involved in this successful effort. Similar standards-setting projects are now underway for science, history, civics, geography, and the arts.

The ECS report does not tell how accountability policies should change, just that they must. Hill and Bonan (1991) agree that states "must find ways of holding schools accountable without dominating local decisions or standardizing practice. The basis of a site-managed school's accountability . . . [is] not its compliance with procedural requirements." They suggest that "the ultimate accountability mechanism is parental choice." McDonnell (1990) is less certain, suggesting that out of the set of bureaucratic, political, professional, and market (parental choice) forms of accountability, there needs to be developed some new, hybrid form.

This change in accountability relates to a set of changes in the governance of schools. Murphy (1990) refers to these changes as voice and choice, involving three specific elements. "First, restructuring schools empowers parents and community members . . . Second, they expand the school community—they unite parents, professional educators, businesses, universities, foundations, the general populace into a collective force dedicated to the improvement of schooling for all children. Third, the notion of parental choice is thoroughly intertwined in discussions about transforming the relationship between schools and their communities." In sum, two key aspects of restructuring involve giving people at the school-site level authority that is equal to their responsibility while, at the same time, being tempered and checked by real accountability, defined in a variety of ways and ensured by various means.

Restructuring is one very important foundation for systemic reform, but systemic reform goes well beyond restructuring. We can identify several other specific aspects of systemic reform. One added element of systemic reform is curriculum restructuring or alignment. That is, new, more integrated and cohesive curricula must be developed. They must fit or be in alignment both with the aims of schooling and with one another. The development of new state curriculum frameworks is a logical next step in a standards-based reform process as defined above.

Another aspect of systemic reform is the development of meaningful standards of achievement and performance in every curriculum area. The only way to do this seems to be on the basis of a broad national process based on consensus among professional educators in specific content fields. These standards must be a basis for curriculum design and for state curriculum frameworks.

A third added aspect of systemic reform consists of changes in instruction, especially a new emphasis on the student instead of the delivery system. Instruction becomes less teacher centered and more student focused, less generic and more personalized, less competitive and more cooperative. Murphy (1990) defines three aspects of these changes in curriculum and

instruction as (a) mastery or outcome-based learning, (b) developmentally-based learning, and (c) the personalization of learning. He calls the new system "teaching for understanding."

Finally, systemic reform calls for developing new ways of assessing performance and progress, more authentic ways to find out what students know and can do. These new approaches to assessment must be consistent with the changes in curriculum and instruction. In fact, they must be a natural part of curriculum and instruction. That is, the new assessment approaches are used not simply to judge or label students or schools but to identify learning needs and even to help tailor specific learning approaches and activities to the needs of individual students.

Making all this work requires teacher empowerment, that is, a substantial increase in professionalization of teaching. This may mean more formal decision-making influence in the school; more important, it surely means a larger role in defining the work of teaching as well as major changes in the design of teachers' work. Note, then, how the same concept and approach to staff development discussed by Fullan (1990) is woven into our concept of systemic reform. Note, too, that the sort of approach to school improvement we identified as derived from OD is also a basic element of systemic reform, seen here as site-based management. Even the technical innovations featured in the strategy we discussed first, "Transfer and Implementation of Program Innovations," are contained within the systemic reform strategy.

Significant systemic changes in education require a working consensus on the need and direction for change. Practical guidance on approaches to mobilizing a broad consensus on needed actions can be found in reports such as those authored by Hill et al. (1989) and by Glassman (1989), describing efforts in major cities. Help that is especially useful for those working toward systemic reform at the state level is contained in the report by the Commission on Maine's Common Core of Learning (1990). This report describes a sequential state-wide and community-by-community approach to creating a consensus on the need for comprehensive change. Building this sort of consensus and developing support for fundamental change is not a simple task, but it is being accomplished in Maine, and it can be done elsewhere through informed and effective leadership and major commitments of time and patience.

> ***Summary: Systemic Reform.*** This approach builds on and incorporates not just the other three but their underlying strategic foundations. We see the use of innovative technical knowledge combined with staff development in the context of a school improvement approach that is multilevel, involving not only the school, the district, and the state agency but reaching out as well to create cultural change in the community.
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> Systemic reform does not simply emphasize one or another of the perspectives defined by House (1981). While based on the cultural perspective, it incorporates both the rational-scientific and the political perspectives. Systemic reform holds real promise for successful change in schools. It represents a synthesis of knowledge about

educational change, including knowledge derived from practice as well as from research. While it is too early to cite definitive research on this approach, it seems to us to hold the most hope for successful reform.

A Synthesis—Directions and Implications

Our approach in this review has been to provide a broad-brush overview of efforts to improve schools over the past 30 years. We recognize that we have neglected many details, yet we hope we succeeded in giving the reader a reasonably accurate overview of the conceptual and pragmatic history of research-based educational change. In concluding, we shall take our overview approach still farther, using the metaphor of waves of reform.

The Third Wave: A Systems Approach

It has been said that we are in the midst of a third wave of education reform. The first wave in the 1960s and early 1970s centered on the first approach we discussed, transferring innovations, based on the rational-scientific strategy. It was a failure, absent the sort of resources needed to create a national educational extension system on the model of the Agricultural Extension Service or develop other market mechanisms to link knowledge producers with users. In short, significant change does not occur on the basis of the "brute sanity" of the rational-empirical model alone. But we came away with substantial knowledge and a modest and effective way for making relatively small-scale program innovations widely available and usable—the National Diffusion Network.

By the end of the 1970s it was clear that the first-wave efforts fell short of expectations. It then seemed almost as though those in powerful positions, seeing this failure, said, "We gave you social scientists all this money to no effect. By gosh, we'll just **make** them do it." Enter the second wave of educational reform in the late 1970s and early 1980s. The second wave was distinguished by state-level mandates for change, often legislated; generally, it was no more effective than the first-wave reforms. Passing a law or issuing a requirement does not necessarily make people obey the law or meet the requirement. McLaughlin (1990) observes in retrospect, and we agree, that it is possible to create change by sheer force, by mandate and monitoring. Our own view is that while enough force will push the camel through the needle's eye, the camel is not likely to be very healthy or productive afterwards. Still, there was much learned from the various attempts to implement this approach. There have been important and effective lessons on how to link policy instruments with technical and cultural requirements for improving school performance.

And despite the limitations of top-down mandated improvement, the strategy did emphasize an important truth, the need for a systemic and not just a local approach. The OD approach, based on the cultural change perspective, also failed, in part because of its narrow focus on the individual school. More than a decade ago Miles (1980), a pioneer in using the OD approach, reported on the fate of six innovative schools, all new public schools that had been

created from the ground up. They were all failures, more or less. Eleven years later Miles (1991) pointed out, ". . . strategies such as organization development . . . can clearly be helpful. But in many urban settings little can be done to make significant improvements in the absence of some autonomy and some control over staffing and resources, along with administrative stability and real support from the central office. So working on internal conditions may be only palliative. Urban schools need major political and structural reforms (such as decentralization and school-based management) that provide schools with the real opportunity to control their futures. *Those conditions must be created at the district office or state level.*"

We have all learned a great deal over the past decade. The literature we have reviewed here includes some remarkably consistent and clear findings across the half century since Paul Mort began serious work on school change through the Columbia University Teachers College Metropolitan Schools Study Council (Mort 1964). Even before the current waves of educational reform began, the Ford Foundation's Comprehensive School Improvement Program was charting the issues that others have sought to clarify in many improvement efforts since then (Ford Foundation 1972). For example, reports by Hill, Wise, and Shapiro (1989), Glennan (1989), and the Commission of Maine's Common Core of Learning (1990) describe successful approaches to a fundamental problem identified in the Ford Foundation program, that of building and sustaining a broad base of community commitment and support for systemic change efforts in schools. Deal (1975) was optimistic in his analysis of why the alternative secondary schools movement of the 1960s failed. He predicted that on the basis of what was learned from such efforts, better prepared leaders could succeed in future structural reform efforts.

Overcoming Resistance to Change

During this same period there has been an important and encouraging shift in how resistance to change is viewed. Such resistance, initially dealt with by pejorative name-calling, has come to be addressed by constructive responses and, most recently, is seen as a naturally occurring issue that must and can be dealt with. Turnbull (1991) brings together strands of work that have contributed to this shift.

A major tool that has contributed to research and improved management of change in school settings is the Concerns Based Adoption Model (CBAM). This tool was developed in the early 1970s at the University of Texas Research and Development Center for Teacher Education (Hall et al. 1975; Hall and Hord 1987). CBAM is a systematic approach for finding and fixing barriers to adoption and effective use of fix-the-parts technical innovations in schools. It helps users become actively and effectively engaged in implementing innovations, starting with gaining access to information and leading, step-by-step, to operational use. Training in the use of CBAM and other related change management tools is now widely available. CBAM has broad applicability that goes beyond the successful introduction of one or another technical innovation. It can help people understand and control many of the factors that stimulate or stifle effective change in schools. CBAM empowers people to make change

while supporting their rational assessment of needs and means and, perhaps most important, bringing them together to deal with change as an organized group. It is, then, a tool for integrating the three perspectives on change that we initially defined (reason, political power, and organizational culture) and making them work in concert to support effective school change.

Integrating Strategic Approaches to Change

Each of the three single-dimension strategies we have defined—fix the parts, fix the people, and fix the school—has been shown to work to improve education, at least to a degree and under certain conditions; all are potentially useful. Combinations, we found out early on, can be even more effective. But change based on either one or some combination of these strategies is incremental at best, is often temporary, and is sometimes totally absent—or even for the worse (Sieber 1981). In themselves, the three pure strategies do not directly address problems of context, environment, and the larger system of which the school is but a part. These are structural problems and issues, and that is why the third wave is based in good part on restructuring. These structural problems easily impede change, even when undertaken with vigor, great effort, and much money. We have seen that even then educational change is hard to achieve and harder to sustain. Indeed, cynics comment that the only effect of the third wave will be to break on the rocks like its predecessors. And yet we believe that this new wave, based on the strategy of systemic reform, has a much greater chance of success. We have learned, at least in concept, how to undertake effective educational change. It is culture based, but combines elements of both political force and scientific-technical innovation.

Systemic reform begins at the top, with standards-based reform, a policy-mandated approach. But unlike older policy-based approaches this one grows out of a cultural strategy as well; it is based on developing a broad, national consensus among key stakeholders in a content field on the definition of standards. That such standards will be technically sound is ensured by the high degree of technical competence of the parties involved in their development. That is how the widely applauded standards for mathematics education were developed. That standards are well accepted as well as seen as legitimate is addressed by the diverse representation of standard-setting group members, including teachers, researchers, and policymakers who have technical expertise as well as professional respect. As we noted earlier, similar standards-development processes are now underway with respect to other core content areas, including science, English, history, geography, and the arts. We must emphasize that standards are not simply directives from the top. They must be translated at the state policy level into state curriculum frameworks. It is these frameworks, like the state curriculum frameworks developed in California, that put national standards into action. Like the standards themselves, state curriculum frameworks are developed through a consensus process that involves a diverse set of stakeholders, all of whom have high technical expertise. Thus, both a cultural and a rational-scientific basis are incorporated into what might otherwise be a weak, pure policy approach.

Systemic reform incorporates all three of the earlier strategies we reviewed: dissemination of technical innovations, professional development for teachers, and school improvement. Like earlier reform approaches, there is an emphasis on dissemination of new and more effective teaching technology. This will be necessary for the successful implementation of state curriculum frameworks. Also needed are changes in teacher education and professional development to make sure all teachers will be able to implement the new state curriculum frameworks. But the two earlier strategies, dissemination of teaching innovations and professional development, relied almost entirely on a rational scientific approach to change. When addressed as part of a systemic reform approach, technical innovations and teacher development are much more likely to have strong positive impacts because they relate directly to a clear and accepted aim: the successful implementation of new state curriculum frameworks that enable students to meet and exceed national standards. When this aim is accepted at the building level, teachers will be far more receptive to technical innovations and to professional development approaches. A key factor is the emphasis not just on building-level improvement but on site-based management, that is, real decision-making and problem-solving autonomy at the school level.

We have learned from past failures and from research that an approach to educational change must take a broad, systemic approach that involves structural change. This is done by allowing and attaining autonomy at the school-site level and by building strong school cultures that foster professional (and student) growth and development, encourage innovation and constant improvement, and are accountable for their results. This ideal condition can be approximated, if not fully attained, when there is a stable and supportive political consensus in the community affected, be it local, state, or national. And we believe it can be sustained if, under those conditions, educators are adequately prepared and motivated as professionals to continually strengthen and improve the technical core of content and pedagogy they use to advance student learning. A tall order, but it is important, and the knowledge base exists to do it.

Yet, unless education reformers and practitioners at all levels are aware and make use of the important lessons from the history of previous efforts, all bets are off. It is true that time is running short, with little time left for reanalyses and reflection. But if our efforts to support this new wave of school reform are based only on quick impressions and seat-of-the-pants judgments uninformed by the lessons of research and the history of the failure of educational reform, a great opportunity will probably be lost in the 1990s as history repeats itself.

Why should the current, third wave of educational reform be any more successful than the prior two? Because not only do we know far more now about how to produce change in schools, there is also a broad and powerful social mandate for it. At the national level we have a set of goals, developed consensually with the nation's governors (National Governors' Association 1991).

A Systemic Strategy to Support Comprehensive Reform

The new wave of education reform is promising because for the first time it brings together the technical knowledge needed for improvement with a locally sensitive yet systemic education strategy. At the national level, the U.S. Department of Education has a number of important roles. First, through the GOALS 2000 initiative, the Department will support efforts of states, districts, schools, and communities to develop the capacity they need to undertake and sustain reform themselves within a framework of the six National Education Goals developed by the nation's governors and the President. Next, the Department and the Office of Educational Research and Improvement support standards-based reform by facilitating the development of both national standards and new and more effective approaches to assess the extent to which standards are met in core curriculum areas. The Department and OERI also assist states in developing new state curriculum frameworks and assessments by which the national standards can be attained and documented. Finally, OERI is committed to the dissemination of sound research and practice-based knowledge with respect to innovations and reforms in curriculum and instruction, improvement of the professional preparation and development of teachers, improvement of the quality of schools as organizations, and ways of bringing it all together to achieve and sustain high performance standards.

No one believes that this reform strategy will prove quick or easy. However, this strategy, based as it is on the integrated approach we have called systemic reform, draws strength from being grounded in a set of consensual National Education Goals. Most important, it is driven by the determination of those at the national, state, and local levels to make it happen.

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Illustrative Programs

Brief illustrations are provided in this section for each of the four strategies for promoting school change that are discussed in the body of this paper. The programs described below have been placed under one of the four major strategies for school change discussed in the foregoing research section because they emphasize that strategy in their design or implementation process. They generally include, and therefore illustrate, aspects of other strategies as well. School change programs operating in the real world are not usually limited to single-dimension categories commonly used for analytic purposes. In their developmental design, through unplanned "program drift," or through reasoned "mutual adaptation," programs that survive in the field typically incorporate multiple approaches to accommodate real world complexity.

In keeping with the overall purpose of this paper, these brief summaries emphasize the strategies and processes used to promote and support implementation of change in schools rather than on the specific nature of content or school practices that are being developed or introduced.

We wish to acknowledge substantial use of descriptive information from a particular source in preparing the summaries for South Carolina Effective Schools Training Program, Onward to Excellence, McREL ESP and A+ Programs, and Maine's Restructuring Schools Program. The information about these programs is in large part based on *School Improvement Programs: A Reference Guide to Selected Program Models,* edited by Naida C. Tushnet for the National LEADership Network's School Improvement Study Group Council. Washington, DC: The Institute for Educational Leadership, 1991.

Strategy 1: Fix the Parts: Transferring Innovations

1. National Diffusion Network (NDN)

Purpose. Assist schools, districts, and others to identify and to obtain help in implementing proven programs that match local school improvement needs. NDN has provided information on over 400 programs dealing with all aspects of curriculum, instruction, and school organization. These programs, developed by or in close collaboration with practitioners, have been "validated" through a panel review of evidence of each program's effectiveness. Since 1987, validation is by the U.S. Department of Education sponsored Program Effectiveness Panel (PEP). Previously, validation was performed within the Department of Education by the Joint Dissemination Review Panel (JDRP).

Description. The National Diffusion Network is a federally sponsored program that operates through three kinds of funded components: Developer Demonstrators who provide training, material, and technical assistance to those who adopt their program; State Facilitators (one in every state) and a Private School Facilitator who are the principal direct links between

Developer Demonstrators and those seeking new programs; and Dissemination Process projects that provide awareness information and other supporting services for the overall NDN program.

Most of the validated programs that have been made available through NDN focus on a discrete issue or subject area. For example:

> **Comprehensive School Mathematics Program (CSMP)**, developed by CEMREL regional laboratory and currently serviced by Mid-Continent Regional Laboratory, provides a complete K–6 math curriculum which enables students at all levels of ability to do better in applying math to new problem situations, using a variety of reasoning skills and developing enthusiasm and interest in math—without sacrificing attainment of the traditional math skills and competencies.
>
> **Experience-Based Career Education (EBCE)** was developed by Far West Regional Laboratory with the Oakland (CA) Public Schools to provide an alternative to traditional high school programs. EBCE provides for students of all abilities to spend one-half time in carefully planned activities in businesses and other community employment settings, thereby gaining in career awareness, self-reliance, self-esteem, and motivation to continue acquiring the basic academic skills in the other one-half of their "school" time.

Since 1987, NDN has sought to include more programs that can successfully demonstrate the transfer of complex school improvement or restructuring processes from one school or district setting to another. Illustrations of such programs currently approved by the effectiveness panel and supported by NDN are

> **Outcomes-Driven Developmental Model (ODDM)**, developed by the Johnson City (NY) School District as a master plan for improving all critical facets of school operations in a coherent or holistic manner to produce better student achievement across the full spectrum of ability levels.
>
> **Program for School Improvement (PSI)**, developed by the University of Georgia, demonstrates a process of school governance and shared decision making that improves the quality of classroom and school life for all students.

Contact. National Diffusion Network, Elizabeth Farquhar, Director, Office of Educational Research and Improvement, 555 New Jersey Ave., NW, Washington, DC 20208–5645. (202) 219–2153

Strategy 2: Fix the People: Training and Professional Development

1. South Carolina Effective Schools Training Program

Purpose. Provide principals, district staff, and teachers with knowledge, skills, and processes needed to improve school performance through use of effective schools research. Program was established in 1986 by South Carolina State Department of Education with state funding and receives funds from the OERI Leadership in Educational Administration Development (LEAD) program. State legislation provides a framework for the program, i.e., a 1977 act requiring all districts to engage in long-range planning and a 1984 act that mandated the use of effective schools research in those plans. Stated objectives of the South Carolina Effective Schools Training Program are to increase the leadership skills of principals; to make schools better workplaces for adults; to increase teachers' skills in shared decision-making teams, use of test data in planning, and curriculum alignment; and to increase student learning.

Description. About ten districts have entered the program each year at the discretion of the District Superintendent. Each participating district appoints a training team comprised of one person from the district office; an elementary, middle school, and high school principal; and teachers. These teams receive orientation and training from the state level and then train all of the principals in their home district, who, in turn, provide training for the teachers in their respective schools. The sequence is completed in one year.

The training teams from participating districts receive intensive training in a week-long summer institute. Topics include developing a vision and a mission, disaggregated data analysis, classroom equity, creative problem solving, in-school teams, and presentation and coaching skills. They also receive five additional modules in one-day followup training sessions at 6–week intervals on teacher-made assessment, curriculum alignment, parent involvement, peer coaching, and reorganizing the school. These district training teams provide six training sessions to the principals in the district, who then provide six training sessions for teachers in their schools. There is coaching and feedback after each session at each level in the program. The program has been continually fine-tuned on the basis of direct written evaluations after each session and an annual feedback form distributed by the state. Fidelity to the model is sought through observation, coaching, and feedback following each session. Through 1991, about one-half of South Carolina's 91 school districts have been engaged in the program.

At this time the program is being substantially modified, and a new overall design will be pilot tested in 1991–92. The new design will feature a 3–year sequence, including more followup assistance to the school-based team as it implements, adjusts, and continues developing and refining its improvement effort.

Contact. James O. (Buddy) Jennings, South Carolina Department of Education, Room 1114, 1429 Senate Street, Columbia, SC 29201. (803) 734–8571.

Related Activity. South Carolina Center for the Advancement of Teaching and School Leadership, Barbara Gottesman, Director, Winthrop College, Rock Hill, SC 29733. (800) 768–2875.

2. California School Leadership Academy (CSLA)

Purpose. Provide training for California school administrators as mandated for implementing SB 813, comprehensive educational reform legislation passed by the California State Legislature in 1983. CSLA is state funded, administered by the State Department of Education, and serves as the location for the California Leadership in Educational Administration Development (LEAD) Center, which receives grant support from OERI.

Description. The CSLA Program Development Center is located at Hayward, CA. The training program is delivered through 14 regional training centers across the state. Each regional center has a director and training staff, usually including school administrators as adjunct staff. Adjunct staff receive training at centers in Sacramento and in Orange County in groups of 30–40. Training is designed to prepare adjunct trainers to effectively deliver specific instruction/learning modules to administrators in the field.

CSLA offers a 3–year core curriculum consisting of about 30 modules. Participants devote about 15 days in training per year and complete 5–6 modules from the 10 that are offered each year as they progress through the program. Year 1 focuses on Analyzing the Instructional Program; Year 2 on Strengthening the Instructional Program; and Year 3 on Leading School Site Reform. High quality instructional materials and training modules are developed for the program and continually refined on the basis of assessments by trainers and program participants. Modules focus on topics such as Increasing Your Leverage as an Instructional Leader, Creating a Vision, Shaping A Culture, Using Student Performance Data, Establishing Missions and Goals, Strengthening the Curriculum, Developing Instructional Skills, Strengthening the Organizational Context, Involving Parents as Partners, Determining An Appropriate Intervention for School Improvement, Improving the Quality of a Content Area Program, Overcoming the Inevitable Resistance to Change, and Structuring the School for Student Success. David Marsh, USC, and the National Center for School Leadership are conducting impact studies. About 25 percent of the state's school administrators (over 4000 individuals) have participated.

Contact. Sally Mentor, Executive Director, California School Leadership Academy, 660 J Street, Suite 390, Sacramento, CA 95814. (916) 448–2752.

Strategy 3: Fix the School: Developing Organizations' Capacities to Solve Their Problems

1. Onward to Excellence: Making Schools More Effective

Purpose. Within an organization development framework, help schools to improve student outcomes through systematic use of findings from research on effective schools. Over 1,000 schools have participated in the program to date. The Northwest Regional Educational Laboratory, developer of the program, has worked directly with over 600 schools, and an additional 400 have been assisted by persons trained by the Laboratory.

Description. Northwest Lab staff or persons trained by the Lab provide training and technical assistance to districts that contract for this help in implementing the Onward to Excellence school improvement process at the building level. Each participating school establishes a "leadership team" comprised of 7–8 members including 3–6 teachers, teachers, counselors, and other specialists; 1–2 building administrators, including the principal; one district office representative; and optional members who may represent the community, parents, students, and classified employees. This team receives training from Northwest Lab and manages the ensuing improvement effort at their school.

Resulting school improvements are focused on student achievement, attitudes, or behavior. The team uses effective schools research to guide their efforts. The process takes 2 years and moves through the following steps: Getting Started (establishing the team, studying the school improvement process, teaching the process to the remainder of the staff); Studying the Research Base (the leadership team gains in-depth knowledge and introduces the information to the remainder of staff); Profiling Student Performance; Setting Schoolwide Improvement Goals (the entire staff reviews the profile report identify strengths, weaknesses, and local standards, and sets priorities for improvement); Checking Current Instructional Practice; Developing a Research-Based Prescription; Monitoring the Implementation Process; and Evaluating Progress and Renewing Efforts. Building-level evaluation of progress and impact on student achievement is built into the model.

Northwest Laboratory maintains a School Improvement Network Directory and conducts followup surveys regarding continued use of OTE by schools that have engaged in the program.

Contact. Robert Blum, Director, School Improvement Program, Northwest Regional Educational Laboratory, 101 S.W. Main St., Suite 500, Portland, OR 97204. (503) 275–9615.

2. McREL Effective School Program and A+ Achieving Excellence Program

Purpose. Assist schools at varying levels of previous experience in school improvement to master and apply systematic, research-based approaches to improve their performance. The Effective Schools Program (ESP) emphasizes application of effective schools research concepts to improve efficiency and effectiveness of the school. The A+ Achieving Excellence

Program provides assistance at a more advanced level focusing on developing schools' ability to achieve excellence through use of strategic analysis, design, and empowerment strategies.

Description. Districts contract with the Mid-continent Regional Educational Laboratory (McREL) for the training of school leadership teams and related services over a period of at least 18 months. Schools usually begin with the basic core curriculum of the Effective Schools Program consisting of five components: Building-Level Leadership and Organization (focusing on the characteristics of effective schools); Teaching and Instruction (focusing on effective teaching and organizing for instruction); Curriculum and Assessment (examining the curriculum to be taught, including a review of test content to determine the match between teaching and testing); Change Process and Change Management (focusing on the team's roles in managing change for the improvement plan); and Planning (resulting in the team writing a plan for its own work to guide it in leading the school improvement effort). These five components are completed during the first 12 months. The team then begins implementing their plan and McREL staff provide on-site support and technical assistance. Four additional sessions on the role of administrators in the improvement process are provided for principals and district administrators.

McREL is currently developing A+ Achieving Excellence as its next generation program to assist school efforts in systemic change and restructuring. Much of the ESP program and lessons learned in using it are being merged into A+ along with new state-of-the-art material on strategic analysis, design, and empowerment strategies.

Contacts. Fran Mayeski, Mid-continent Regional Educational Laboratory, 2550 South Parker Road, Suite 500, Aurora, CO 80014, (303) 337–0990; and Susan Everson, (816) 756–2401.

Strategy 4: Fix the System: Systemic Reform

1. Maine Restructuring Schools Initiative

Purpose. Fundamental restructuring of education to prepare Maine students better for the 21st Century. Developing and supporting leadership and action at community, school, district, and state levels focused on rethinking and redesigning education in Maine to meet the learning needs of all of the state's people.

Description. A series of interrelated activities have been launched over the past 4 years to support initiatives at all levels in the state aimed at rethinking and redesigning education to better serve the people of Maine. The following illustrate the nature and scope of this ongoing effort:

Maine's Restructuring Schools Program. This 4–year program initiated by the State Department of Education in 1987 made competitive awards to 10 schools to develop and implement restructuring plans. A steering committee comprised of representatives from the Maine Department of Education, the University of Maine system, the Maine Center for

Educational Services, the Maine Leadership Consortium, and the Regional Laboratory for the Northeast and Islands provided guidance in developing and conducting the application review process, designing the year-long planning process, and providing technical assistance to the funded sites. A statewide model was developed to encourage and support school personnel in rethinking schooling in fundamental ways. Goals for each participating school are: learn more about and apply research on effective schools, effective teaching, school change, and staff development; develop an effective, collaborative problem-solving team; develop communication and support for restructuring activities; assess areas for restructuring and set priorities among them; identify and use available resources and information from local, state, and national sources; develop strategies for restructuring; and develop an evaluation plan for the process and impact of their restructuring effort. An interim report, *Work in Progress: Restructuring in Ten Maine Schools*, was published by the Maine State Department of Education in 1991. The report provides a rich description of each project and a cross-project summary of progress and lessons learned.

Maine's Common Core of Learning. A broadly representative and prestigious Commission on Maine's Common Core of Learning was established in February 1989 to produce a statement of what Maine's youth should know and be able to do in the 21st century. After a year and a half of intense discussion, hearings, study, and reflection, they published *Maine's Common Core of Learning: An Investment in Maine's Future*. This attractive 64–page report has been endorsed by leaders across the state and is being used as a centerpiece for serious discussions at the local level as each community in Maine determines what kind of education it will provide and the changes that will be necessary in providing it.

Contact. Polly Ward, Maine Department of Education, State House Station 23, Augusta, ME 04333. (207) 289–5114.

Additional Sources

Strategy 1: Fix the Parts: Transferring Innovations

Educational Products Information Exchange (EPIE) Institute, Kenneth Komosky, 103 W. Montauk Hwy, Hampton Bays, NY 11946. (516) 728–9100.

National Society for Performance and Instruction. Monthly journal, *Performance and Instruction*. Serves education, training, and development specialists in private sector as well as public agencies and institutions.

Strategy 2: Fix the People: Training and Developing Professionals

The Holmes Group. *Tomorrow's Schools: Principles for the Design of Professional Development Schools*. A Report of the Holmes Group prepared by Lauren S. Young, Gary Sykes, Joseph Featherstone, Richard F. Elmore, and Kathleen Devaney, 1990. Contact: The Holmes Group, 501 Erickson Hall, Michigan State University, East Lansing, MI 48824–1034.

LEAD Program/State School Improvement Program Models. Naida C. Tushnet. Ed., *School Improvement Programs: A Reference Guide to Selected Program Models*. Washington, DC: Institute for Educational Leadership, 1991.

National Commission for the Principalship, Scott D. Thompson, Executive Secretary, 4400 University Dr., Fairfax, VA 22030–4444. (703) 764–6516. *Principals for Our Changing Schools: Preparation and Certification*. Fairfax, VA: NCP, 1990.

Northeast Common Market for Teachers/School Administrators, c/o The Regional Laboratory, Andover, MA. Anne Newton, Richard Basom. (508) 470–0098.

Strategy 3: Fix the School: Developing Organizations' Capacities to Solve Their Problems

UCEA (University Council for Educational Administration) Program Center for Organization Development in Schools, Richard A. Schmuck, Director, DEPM, Room 124, College of Education, University of Oregon, Eugene, OR 97403 (See *UCEA Review*, 31(3) (Fall 1990): 8, 14.

Strategy 4: Fix the System: Systemic Reform

Arthur Andersen and Company, "School of the Future" project. Morton Egol, Partner, and Richard L. Measelle, Managing Partner. *A New System of Education: World-Class and Customer Focused,* 1990, and *Helping Public Schools Succeed,* 1990.

Center for Research on Effective Schooling for Disadvantaged Students, Johns Hopkins University. Contact: Gary D. Gottfredson and Denise C. Gottfredson, Program on Achieving School Improvement Through School District Restructuring. See *Report No. 10*, August 1990.

Center for Research on the Context of Secondary School Teaching, Milbrey W. McLaughlin, Director, Stanford University School of Education, CERAS Building, Stanford, CA 94305. (415) 723–4972.

Center on Education Policy and Student Learning, Susan Fuhrman, Director, The Eagleton Institute of Politics, Rutgers University, Wood Lawn Neilson Campus, Clifton Avenue, New Brunswick, NJ 08903–0270. (908) 828–3872.

Center on Research in the Inner Cities, Margaret C. Wang, Director, Temple University, 13th Street and Cecil B. Moore Avenue, 933 Ritter Hall Annex, Philadelphia, PA 19122. (215) 787–3001.

Center on the Organization and Restructuring of Schools, University of Wisconsin Center for Education Research, 1025 West Johnson Street, Madison, WI 53706. Fred M. Newman, Director. (608) 263–7575.

Council of Chief State School Officers Policy Initiative. Restructuring Schools. *Success for All in a New Century: A Report of the CCSSO on Restructuring Education.* Washington, DC: Author, 1989.

Kindle the Spark Program. Hergert, Leslie F., Janet M. Phlegar, and Marla E. Perez-Selles. *Kindle the Spark: An Action Guide for Schools Committed to the Success of Every Child.* Andover, MA: The Regional Laboratory. (508) 470–0098.

National Center for Educational Leadership, Graduate School of Education, Harvard University, Gutman Library, 6 Appian Way, Cambridge, MA 02138–3704. (617) 495–3575. Lee G. Bolman, Director; Terrence E. Deal, Co-Director (Vanderbilt University).

National Center for School Leadership, University of Illinois, School of Education, Urbana-Champaign. Contact Paul W. Thurston, Center Director. (Mission, progress, and plans are summarized in Center newsletter, *Leadership and Learning,* 3(3)(Spring 1991): 1–6.
National Governors' Association, Task Force on Education. 1990 Report, *Educating America: State Strategies for Achieving National Education Goals.* NGA, 444 N. Capitol Street, Washington, DC.

New York State Task Force on Implementing Educational Reform, Robert H. Koff, Chair, and Dean, School of Education, SUNY-Albany. *Time for Action: Implementing Educational Reform in New York State,* November 1989.

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Regional Educational Laboratory Program. Ten laboratories receive support from the U.S. Department of Education (OERI) to develop and provide a variety of research-based services in defined, multi-state regions under policy direction of regional governing boards. For information on the laboratory program and major laboratory activities that support systemic school improvement or restructuring, contact individual laboratories or John Egermeier, or OERI, Washington, DC 20208–5644. Voice #: (202) 219–2116; FAX #: (202) 219–2106.

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